SUSTAINABLE DEVELOPMENT IN MADAGASCAR: A CASE STUDY

Summary

THE UNIMA GROUP

Sandy Rajaosafara & Thomas du Payrat

An independant assessment made within the WWF & UNIMA group partnership
1 CONTEXT

The UNIMA Group is an agribusiness and fisheries company that has been operating in Madagascar since 1973. The Company’s businesses are briefly described in Figures 1 and 2.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Components</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHRIMP TRAWLING</td>
<td>Pêcheries de Nossi-Bé (PNB), Aquamen-Pêche SA (AMP), and Société Kaleta Export (SKE)</td>
<td>Operating out of various ports on the west coast of Madagascar and responsible for approximately 39% of the country’s wild caught shrimp in 2007</td>
</tr>
<tr>
<td>AQUACULTURE</td>
<td>Aquaculture of Mahajamba (AQUALMA)</td>
<td>Operating from two farms (Mahajamba and Besalampy) on the north west coast of Madagascar and responsible for approximately 75% of aquaculture produced shrimp in 2007</td>
</tr>
<tr>
<td>CASHEW PLANTATIONS</td>
<td>VERAMA¹</td>
<td>600 ha of plantations and trial production areas in north west Madagascar that are not producing commercially yet</td>
</tr>
</tbody>
</table>

Figure n°2 : Locations of UNIMA facilities in Madagascar and La Réunion
UNIMA & SUSTAINABLE DEVELOPMENT

Figure n°3: Activity scheme

An Overview of Trawling Operations

1. Captive broodstock unit & hatchery
2. Larval rearing
3. Drying asculine corals
4. "Percez muronum"
5. Protecting and expanding mangrove cover
6. "Label Rouge" Official French quality label
7. Activity of substitution?
8. Shrimp biological cycle
9. Protecting coral reef
10. Fishing less to fish better
11. Dialog with fishermen
From its inception, the Company has been deeply committed to the social and economic development of Madagascar and also to the protection of its unique ecology – commitments that were enshrined in the Company’s Values which were defined and published in 2005 (Figure 4).

**Figure n°4 : UNIMA’s Corporate Values**

**TO AIM FOR EXCELLENCE**: expressed through a commitment to total quality, including product and production quality, and a continuing quest for progress, competency, motivation, and the enhancement of Company staff and management effectiveness;

**RESPECT FOR OTHERS**: respect is a requirement that applies both inside and outside the Company. Inside, it is expressed through a commitment to personal development (materially and psychologically) and through tolerance and openness to the ideas of others. Outside, it is expressed through the Company’s commitments and responsibility towards the environment, culture, and the laws of the country.

**TEAM WORK**: requires an ability to listen, communicate, and convey the passion that motivates others «Antsika jiaby miara mandrosoo»;

**BE BOLD**: boldness is one of the expressions of the collective corporate ambition. Boldness implies the ability to project ambitions and ideas towards the future. It incorporates innovation, a concern for creativity and responsibility for actions and to learn from successes and failures.

**BALANCE**: is expressed through safeguarding the commitments that people make in their roles within the Company. The point is to promote actions that are collectively ambitious but realistic.

**TO DEFEND ETHICS**: ethics means honesty and loyalty towards both the Company and its natural, social, political, and economic environment.
UNIMA's commitments to sustainability are increasingly important in a world where social development, environmental responsibility, transparency and accountability are becoming central to successful business models and long term business success.

In 2007, UNIMA and WWF formed a partnership to demonstrate and scale up the impact of UNIMA’s sustainability commitments, and are working together to:

- promote more sustainable business practices and demonstrate that such practices can generate financial and market benefits;
- demonstrate the role that private companies can play in protecting the natural environment and in enabling social and economic development;
- encourage wider adoption of sustainability in the business models and financing of private sector activities;
- demonstrate that partnerships can achieve faster, more credible and more substantive progress towards sustainable business.

This is an innovative partnership model for WWF since it is their first partnership with a “southern” aquaculture and agribusiness producer. The partnership aims to promote production models – of shrimp trawling and aquaculture, and cashew production – that are demonstrably responsible in terms of their environmental, economic, and social performance. Joint activities within the partnership aim to further reduce UNIMA's ecological impact, to conserve biodiversity, and to promote socioeconomic development.

Importantly the partnership is not based on funding or financial support from UNIMA to WWF – it is a joint endeavour to demonstrate that sustainable development generates long-term value for producers and their value chains.

At the outset of the partnership it was agreed that the company’s performance should be assessed by independent consultants so as to provide a credible and third party perspective of UNIMA’s sustainability impact. That study was completed in January 2009 and is available at UNIMA’s web site (www.unima.com) and this summary has been prepared for the general public, UNIMA's clients and customers and other interested parties.

Section 2 reviews UNIMA's impacts, Section 3 identifies actions and activities that the Partnership will focus on moving forward and in the light of this study’s findings, and Section 4 provides a conclusion for the work.
2 THE STUDY

Between June and December 2008, two consultants undertook a series of interviews and site visits to UNIMA operations in Madagascar. Their task was to assess the economic costs and benefits of UNIMA’s sustainability initiatives. Studies of this nature are still relatively new to private companies and there are no agreed methodologies or widely accepted approaches. Nevertheless, the consultants used a range of international commitments (such as the Millennium Development Goals) and voluntary standards to determine the Company’s relative performance, and also a range of data and information from Madagascar to assess social, environmental and economic performance. Their conclusions are presented below.

SOCIAL IMPACTS

In the social and economic context of Madagascar, UNIMA appears to be exemplary in several respects. The Company:

- is an important formal employment provider, mainly in the region of Boeny, a region with a high unemployment rate (5.3% versus 2.8% at the national level);
- has invested heavily in the development of villages and communities near to its operations with a preferential employment policy for the “zanatany” (indigenous) populations, and community development actions that provide significant public good services in relation to education, public health care, potable water supply, security and planning;
- provides its employees with social benefits that are higher than those required by Malagasy law and, according to the consultants experience, are higher than those provided by most private firms in Madagascar:
  - minimum salaries that are about twice the legal minimum;
  - a free of charge monthly distribution of rice which provides food security among wage earners and their families;
  - the establishment of a complementary social protection system - including access to medical care, and health and social mutual benefit societies;
  - the implementation of ILO core labour conventions (relating to child and forced labour, discrimination and freedom of association) and Human Rights at work. Of particular note, UNIMA fishery (PNB, AMP and SKE) is the first and only group of fisheries companies in Madagascar, which has negotiated and signed contracts with unions.
- has implemented health and safety requirements that are exemplary for Madagascar – and in their trawling operations appear to surpass the accident safety record for French trawling activities between 2004-2007.
ENVIRONMENTAL IMPACTS AND INFLUENCE

UNIMA has received approval for all its operations from ONE (the Ministry of the Environment) and reports annually on its environmental performance. Long-term monitoring over the period 2004-2007 shows:

- That there has been no significant change in water quality or quantity from aquaculture production ponds;
- That all waste water from farm accommodation is treated in septic tanks before discharge;
- That processing plants have waste water treatment systems that collect and treat all waste effluents.

The Company has also committed significant resources to training and capacity building of staff, contractors and local communities (particularly around the use of fire wood from native forests) and there is a high level of awareness and commitment to environmental matters throughout the Company.

UNIMA has also had a longstanding commitment to the conservation and management of biodiversity at its sites (for example see Figure 5). This includes the protection of habitats and species and is particularly relevant given Madagascar’s high levels of endemism and significance in terms of global biodiversity. These efforts are frequently undertaken with the support and involvement of local communities. Key initiatives include:

- Extensive planting of mangroves and re-afforestation activities (850,000 plants - 85 ha at AQUALMA and 70,000 plants - 7 ha at PNB operations at Nosy Be), plus an additional 95 ha of other (non mangrove) replanting around other sites.
- Fuel efficiency measures and programs to reduce pressure on native forest from local communities;
- Active management of biodiversity at all sites - at Besalampy for example, the ecological value of adjacent dry forest and sand dunes was noted and in 2004 a collaborative project with a local NGO and communities. A management plan was developed and controls developed on the use of natural resources, hunting, fire, reforestation and the relocation of local people who were living in the dunes to a more appropriate and habitable area.

Figure n°5 : Tahina Spectabilis

At the North East of Verama, the cashew nuts plantation, the limestone outcrops (Tsingy) offer a luxurious landscape where the exceptional flora and fauna display a tremendous biodiversity.

A tree grows in the canopy of one of the huge palm trees, as if it had taken root at the very heart of the palm tree. In fact, this is the stipe of the palm tree which is a kind of inflorescence that may resemble a huge sisal flower spike. This flower spike is twice as high as that of the palm tree.

Doctor John Dransfield, a world specialist in palm trees, sent a young student to observe the population and take samples to Kew Botanical Gardens in London and to Fairchild Botanical Gardens in Florida. The results announce that the palm tree is not only an unknown species worldwide but, in addition, of a new botanical genus.

The tree was formally named Tahina spectabilis, and described for the first time in 2008 in the Botanical Journal of the Linnean Society. In Malagasy, the name of the genus Tahina means “blessed” or “protected”. In addition, the word spectabilis recalls the spectacular and gigantic aspect of the tree.

In order to protect the species and the genus, UNIMA immediately constituted a « Committee for Managing the Tahina’s » with indigenous farmers; then undertook collaboration with the Royal Botanical Garden of Kew and the Millennium Seed Bank; and formulated for the Ministry of Environment, Water, and Forests an official application for classification as a Protected Area for the site of Tahina’s.
UNIMA’s production system is described in Figure 6. It is noteworthy for a variety of reasons but particularly for the efforts that have gone into the domestication of wild broodstock (in many ways similar to the domestication that has taken place with other « farmed » animals over the course of human endeavour). The domestication, increases management and production efficiency, reduces shrimp disease risk and (very importantly in terms of environmental impact) reduces impacts on the marine environment in respect of the capture of post larvae.

In its selection of production sites, UNIMA has been guided by comprehensive environmental and social assessments, which included analysis of biodiversity and social impacts. All production ponds are located on extensive areas of intertidal mud/sand flats that are recognised as being biologically inert and with very low biodiversity, and which are not used by local communities.

UNIMA’s aquaculture operations comply with Malagasy environmental and social regulations and regular (annual) monitoring reports are provided to ONE. Research undertaken as part of the partnership has indicated that further environmental and economic benefits (in relation to fuel use/ green house gas emissions and energy costs) can be achieved through changes in pond water management and UNIMA is now implementing these measures.

**Figure n°6 : A Summary of UNIMA’s Aquaculture Model**

- An annual production of 4.5 t/ha/year
- A low breeding density (5-12 juveniles per square meter)
- Production ponds from 5 to 10 ha in size
- Mixed feed (natural productivity of ponds and feed)

The production species are tiger prawn (*Penaeus monodon*) which are native to Malagasy waters (i.e. this is not an introduced species) and UNIMA has developed a breeding and stock improvement program that means they do not harvest wild larvae or broodstock for their operations (i.e. they have domesticated broodstock).

The shrimp breeding activity is done on salt flats (flat, clayish areas without vegetation) and uses unused and infertile land.

AQUALMA is the only Malagasy operator, which has a fully integrated production model. It produces its own feed, via a feed mill in Reunion (NUTRIMA), which has allowed significant cost efficiencies of production, and the lowest food conversion ratio costs in Madagascar (between 6% and 14% lower than the average conversion ratio in the sector over the 2001-2005 period), reducing waste and pollution from waste effluents.

Additionally, UNIMA has entered a partnership with INRA (a French research agency) on further reducing fish protein components in its feed and substituting these with plant proteins. There is significant urgency to reduce the over-exploitation of pelagic fish stocks for use in fishmeal/animal feed and, particularly in aquaculture.

Regarding *Penaeus monodon*, AQUALMA is the first firm in the world that has successfully developed a full domestication program for broodstock. The benefits of this include a removal of impacts to the marine environment from the capture of wild post larvae (resulting in significant environmental benefits) and also high levels of control in relation to bio-security.

UNIMA benchmarked its operations against the Global Aquaculture Alliance aquaculture certification standards in 2005. The company’s operations could all have been certified under GAA and according to the certifier the results “reflected the high standards that the firm set in environmental protection and social responsibility”. The Company has also been active in the shrimp dialogue that will develop the first credible globally applicable “third party” certified shrimp into the market, and has committed to certification under this standard when it is launched.
AQUALMA grow out ponds
UNIMA & SUSTAINABLE DEVELOPMENT

TRAWLING OPERATIONS:
UNIMA has developed and implemented a range of “responsible fishing” practices based on the European code for best practices for responsible fishing and integrating the principles of the FAO code of conduct for responsible fishing with a view to ensuring the sustainable management of shrimp resources. The Company has led the development of more sustainable fishing practices in Madagascar and the following actions are of note (Figure 7):

**Figure n°7: UNIMA Commitments to Sustainable Fishing**

- **TURTLE PROTECTION:** UNIMA was the first Company in Madagascar to introduce the use of Turtle Excluder Devices (TED) across its fleet resulting in an immediate positive impact - between February and June 2003 (before the introduction of TEDs) 136 turtles were captured (of which 133 were returned to the sea alive), since February 2003 when TEDs were introduced none have been captured.

- **FISHING OPERATIONS:** As part of a unilateral effort to reduce fishing pressure on natural stocks, UNIMA introduced changes to the timing and duration of fishing activities during the first days of the fishing season, fishes with a single net in place of twin nets for part of the fishing season and has reduced the number of boats at work.

- **BY-CATCH REDUCTION:** UNIMA has implemented the use of By-catch Reduction Devices (BRD) over its whole fleet. Reduction in by-catch results in better quality shrimp and, beyond that reduces impacts on marine ecosystems and biodiversity. By-catch from UNIMA gear now accounts for only 7% of total catch versus rates quoted by environmental NGOs, of between 5 to 25 kg of fish 1 kg of shrimps (1,500%);

- **REDUCED IMPACTS ON SEA FLOOR:** UNIMA is the only shrimp fishing industry operator to remove the “drag” chain that disturbs the seafloor and encourages shrimp to swim into the water where they are captured in the net, but which significantly damages the seafloor;

- **INCREASE IN NET MESH SIZE:** UNIMA was a pioneer in increasing the mesh size of nets (from 40 to 60 mm) an action that was subsequently implemented across the industry in 2003 with a view to improving the size of shrimp taken and to preserve smaller size shrimp;

- **BUYBACK AND DESTRUCTION OF ILLEGAL FISHING GEARS:** in 2003 and 2004, the Pêcheries de Nossi-Bé firm participated in the “retirement” of unauthorized fishing gear used by small scale coastal fishermen (this gear comprised mosquito nets which catch virtually all marine species and have a very severe impact on coastal fisheries) to avoid the destruction of shrimp nurseries among mangroves and estuaries;

- **CREATION OF ARTIFICIAL REEFS:** In consultation with the authorities, the association of traditional fishermen and diving clubs, in 2007, rather than selling two laid up fishing trawlers, the Pêcheries de Nossi-Bé created an artificial reef by scuttling both trawlers;

- **FUEL EFFICIENCY:** the monitoring of fuel consumption as well as the better management practices identified above has resulted in a 31% reduction in fuel use between 2003 and 2006 with obvious CO2 emission reductions;

- **DIALOG WITH TRADITIONAL FISHERMEN:** UNIMA has also taken a leading role in the dialogue between industrial and traditional fishermen in North West Madagascar and worked in sensitizing the latter on the importance of respecting the closure period of shrimp fishing. These activities included information campaigns, production of a local information magazine in Sakalava dialect, development and promotion of alternative livelihoods (including crab farming as a substitute activity during the shrimp fishing close season).
UNIMA was a founding member of the Madagascar Shrimp Farming and Fishing Association (GAPCM) and has argued consistently for that agency to incorporate sustainability and resource efficiency within its mandate. This has included successful efforts to increase the mesh size for trawl nets, the introduction of Turtle Excluder Devices (TEDs) on trawlers, as well as the consultation among industrial, small scale and artisanal fishermen on sustainable fishing practices (Figure 8). The company has also been a strong advocate for the adoption of Marine Stewardship Council certification of the west coast shrimp fishery. An initiative that has sadly not been adopted for a variety of reasons outside of the Company’s control.

UNIMA has also been instrumental in developing a range of innovative and important development partnerships in Madagascar which have sought to promote sustainable development principles and practices in coordination with local bodies: communes, grassroots communities (COBA), fokontany, gendarmerie, village based associations, public and private schools. UNIMA formalized these efforts by establishing a “community based development” service that is specifically in charge of implementing its corporate and environmental procedures and practices. The Company has leveraged its community development work via partnerships and development activities with a range of agencies.

**Figure n°8 : Pioneer Actions by UNIMA within the GAPCM**

→ From 2000, UNIMA imposed restrictions on shrimp fishing gear (increasing mesh size from 40 to 60 mm), which were adopted more broadly within the Malagasy shrimp trawling industry (via GAPCM) in 2003.

→ In relation to coastal management, UNIMA promoted and led the ZAC (Zones d’Aménagement Concerté) project which seeks to develop collaborative coastal management systems that address the needs of industrial, small scale and artisanal fishing activities in NW Madagascar with a view to preventing conflicts, defining management objectives, and to promoting local development. In the context of shrimp fishing in Madagascar, the main issues raised in the 1990s related to conflicts over fishing areas (particularly the risk of artisanal fishing gear destruction or of injuries to traditional fishermen using the same zones as the trawlers) and rational resource management (and particularly better controls on the capture of larvae and small shrimp and fish species) and fishing season controls. The ZAC process aims to address all of these issues.
UNIMA & SUSTAINABLE DEVELOPMENT

ECONOMIC AND INSTITUTIONAL IMPACTS

Few quantified impact assessments of the social, environmental, economic, and institutional impacts of a private sector company have been developed prior to this study and thus there was no agreed template or format for the consultant’s research. Nevertheless, the consultants concluded that, the opportunities and benefits afforded by the Company’s commitment to health, education and welfare are exemplary. In addition to its direct impact in terms of employment, UNIMA creates direct and indirect economic opportunities for local people and businesses.

A key impact identified by the consultants included the beneficial impacts of infrastructure development. UNIMA’s logistics and infrastructure needs have improved road, river and maritime links (and access to markets) and significantly reduced the isolation of many rural communities. Depending on the location, inhabitants may use Aqualma boats to go to Majunga (to sell goods) and traders can move their products and commodities to rural locations. Public market places have also set up as a complement to this scheme and support of farming activity and improved infrastructure has enabled the local population to supply Company operations with fresh products. A preferential purchasing policy among local people for locally available goods and services has been developed to support and strengthen rural enterprise.

According to the consultants calculations, the total (direct and indirect) costs of sustainable development initiatives undertaken by UNIMA in Madagascar between 1992 and 2007 amount in minimum to Ariary 29 billion (11.7 million Euro; 17.5 million USD) identified in Figure 9 below:

<table>
<thead>
<tr>
<th>Figure n°9 : Costs per Component of Sustainable Development Actions</th>
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<tr>
<td><strong>In Millions of Ariary</strong></td>
</tr>
<tr>
<td>DIRECT COSTS</td>
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<tr>
<td>INDIRECT COSTS</td>
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<tr>
<td>TOTAL COSTS</td>
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| **In thousands of Euro**                                     | Social | Environment | Economic | Institutional | TOTAL  |
| DIRECT COSTS                                                |  5 256 |   756       |  1 131   |    660       |  7 803 |
| INDIRECT COSTS                                               |  730   |  1 380      |  1 527   |    267       |  3 905 |
| TOTAL COSTS                                                  |  5 987 |  2 136      |  2 658   |    927       |  11 708|

| **In thousands of US$$**                                     | Social | Environment | Economic | Institutional | TOTAL  |
| DIRECT COSTS                                                |  7 885 |   1 134     |  1 696   |    990       | 11 705 |
| INDIRECT COSTS                                               |  1 096 |   2 070     |  2 291   |    401       |  5 857 |
| TOTAL COSTS                                                  |  8 980 |   3 204     |  3 987   |    1 390     | 17 562 |
The consultants estimate that these costs represent on average for 1.85% pa of total shrimp export turnover for the Company but 2.84% at the time of the assignment. These costs are not recognized in traditional business models (or the way in which Companies report financial performance) but are critically important in terms of sustainable development. UNIMA’s commitments to social development, environmental protection and economic development in Madagascar have helped to address many of the pressing development challenges of the Madagascar Action Plan (Figure 10 and Annex 1) and demonstrate the impact that private companies can have in promoting more sustainable development. Importantly also these impacts need to be recognised by the Company’s clients – and ultimately by the consumers of the Company’s products. Linking these sustainability “values” to UNIMAs products is one way in which the value chain can reward companies that are making the extra effort to address challenging but important business practices.

**Figure n°10: UNIMA impact on MAP targets and challenges**

<table>
<thead>
<tr>
<th>Madagascar Action Plan (MAP)</th>
<th>N°1</th>
<th>N° 2</th>
<th>N° 3</th>
<th>N° 4</th>
<th>N° 5</th>
<th>N° 6</th>
<th>N° 7</th>
<th>N° 8</th>
<th>Total Number of Challenges</th>
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<tbody>
<tr>
<td>Number of MAP challenges defined by the Malagasy Government</td>
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<td>8</td>
<td>10</td>
<td>4</td>
<td>5</td>
<td>54</td>
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<tr>
<td>Number of MAP challenges met by UNIMA</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<td>8</td>
<td>3</td>
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<td>3</td>
<td>35</td>
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</table>

Of note are the significant commitments in terms of health (100% of MAP challenges met by UNIMA), rural development (83% of MAP challenges met), the environment (75% of MAP challenges met), and related infrastructure (71% of MAP challenges met).
3 THE UNIMA-WWF PARTNERSHIP
MOVING FORWARD

This summary (and the accompanying study) provides an important review of UNIMAs sustainability commitments and impact. It confirms that the Company has been responsible for improved education, health and other social development benefits as a consequence of its business activities in some of the most remote and impoverished parts of Madagascar. Equally, the better management practices (BMP) that the company has developed in relation to fishing and trawling operations have also delivered environmental and economic benefits (the latter largely through cost efficiencies of production) as well as leadership in the shrimp trawling and aquaculture sectors. These are important messages, which need to be recognised in the Company’s value chains and by investors, regulators and wider civil society.

The findings also provide guidance for the Partnership on future research activities, which will be developed in the coming years. Of particular interest and urgency, the partners believe that research, documentation and disclosure of the impacts and BMPs associated with the following activities are required:

- Water use and management;
- The business case for responsible trawling;
- Carbon sequestration and market opportunities arising from the VERAMA plantation;
- Aquaculture feed and the environment;
- Biodiversity action plans for key UNIMA sites.

As a consequence of the study UNIMA will also disclose information on key environmental, social and economic impacts via annual reports and other means. They will also demonstrate the sustainability impacts and values associated with their products through the third party certification systems that will emerge from the Shrimp Aquaculture Dialogue.
4 CONCLUSIONS

Overall, the consultants confirmed that UNIMA Group has implemented a range of important sustainability actions, which have resulted in average costs in the order 2% of the export turnover over the analysis period (1992 -2007), but which are close to 3% currently, and that these actions demonstrate significant positive impacts against both the Millennium Development Goals and Madagascar Action Plan across environmental, social and economic, and institutional dimensions of sustainable development.

Overall, the consultants confirmed that UNIMA has implemented a range of important sustainability actions, including:

- Implementation of an overall remuneration and social protection policy that exceeds the legal minimum (particularly in terms of compliance with ILO core labour conventions and provision of above average wages and extensive social / employment benefits);
- Cooperation with traditional fishing that promoted sustainable natural resource use and helped to protect the marine and coastal environment in NW Madagascar, and active management of biodiversity at the Company’s operations that has resulted in larger and more secure populations of some of Madagascar’s endemic and endangered species;
- Leadership in the development and implementation of responsible fishing practices in Madagascar through:
  - reduction of by catch, introduction of TEDs and other better management practices;
  - leadership in the sector to promote more responsible and sustainable fishing activities;
- Leadership in the development and implementation of responsible aquaculture practices, particularly in relation to the domestication of broodstock, work on shrimp feed (to reduce fish meal), and protection of important coastal ecosystems and habitats;
- Involvement in community development activities in villages neighbouring UNIMA production sites (in coordination with local development agencies, communities and NGOs) that resulted in significant economic development impacts (including particularly better access to markets, capacity building in relation to farming and business skills, health and education and water supply).

Positive social impacts are extremely evident within the communities where UNIMA Group works. The negative environmental impacts (fuel wood, water pollution etc) seem to be well controlled. Actions aiming to improve the environmental quality in the location are real and effective. The economic impact is resolutely positive for the hosting populations.

In the delicate context, which the Malagasy shrimp industry faces, the sustainable development actions undertaken have to be perceived as a factor for economic and social performance for UNIMA Group. The consultants express the wish that the Group, in a crisis period of the Malagasy shrimp industry but also of global economic crisis, will have the capacity to harvest the fruits of its long term sustainability actions.
ANNEXE 1 DIRECT COSTS INCURRED BY UNIMA IN RELATION TO MAP PRIORITIES

<table>
<thead>
<tr>
<th>N°1</th>
<th>N° 2</th>
<th>N° 3</th>
<th>N° 4</th>
<th>N° 5</th>
<th>N° 6</th>
<th>N° 7</th>
<th>N° 8</th>
<th>GRAND TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Governance</td>
<td>Related Infrastructure</td>
<td>Transform Education</td>
<td>Rural Development</td>
<td>health Family Planning and HIV/AIDS</td>
<td>High Growth Economy</td>
<td>Cherish the Environment</td>
<td>National Solidarity</td>
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<td>Madagascar Action Plan (MAP)</td>
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<td>2 749</td>
<td>662</td>
<td>157</td>
<td>7 076</td>
<td>2 647</td>
<td>1 373</td>
<td>396</td>
</tr>
</tbody>
</table>

Direct costs engaged by UNIMA (in Millions of Ariary)

Direct Costs engaged by UNIMA (in Thousands of Euro)

8  00
80 0
0

Direct Costs engaged by UNIMA (in Thousands of US$)

88 88 , 78% of direct costs of UNIMA’s sustainable development actions relate directly to the 8 commitments of the MAP. In view of the sums deployed to meet MAP targets, there is a fairly logical a predominance of costs:

➔ Health costs and expenditure (36% of total of direct costs of UNIMA Sustainable Development Activities - SDAs) ;
➔ Costs related to infrastructure and promotion of a high growth economy (14% of total direct costs of UNIMA SDAs) ;
➔ Costs associated with the environment (7% of total direct costs of UNIMA SDAs).

ANNEXE 2 FOOTNOTES

1. The consultants did not look specifically at cashew operations given the nascent nature of this business and difficulty in proving impacts at this stage.
2. Let’s all progress together – the company’s motto in Malagasy
3. Sandy Rajaosafara (Manager with the Fiduciaire Luxembourg Paris Genève [LPG Paris France] [sandy.rajaosafara@lpg-paris.fr]), and Thomas du Payrat, Economist with the Odyssée Développement (La Rochelle – France).
4. For example the Marine Stewardship Council (MSC) and Label Rouge
5. This in and of itself is an important commitment in Madagascar which is not universally evident
8. Direct costs are made up of costs that may be directly attributed to sustainable development actions/activities, and that were subject to specific disbursements (e.g., expenses related the distribution of rice to wage earners). Indirect costs are made up of costs shared with other activities of the company or costs that are “opportunity costs”. In that respect, they have not necessarily given rise to specific financial disbursements (e.g., provision of market opportunities and infrastructure use by local communities from neighbouring villages).
9. The Partnership has a focus on environmental management and business benefits (as benefits the interests of both parties), but UNIMA will remain committed to, and will continue to work with other parties, in the development and delivery of social development benefits. Including specifically employment and gender opportunities
10. UNIMA has been the first company in Madagascar to conduct a carbon evaluation, in collaboration with GAPCM across its trawling and aquaculture operations. The Company’s carbon balance sheet will serve as the basis for benchmarks across the Malagasy trawling and aquaculture industry and (for UNIMA) provide an opportunity to explore CO2 emission reduction and off-setting opportunities through carbon sequestration in its VERAMA plantation (the first scientific assessments showed a sequestration potential in the order of 800,000 tons equivalent CO2 for the 6, 500 ha of plantation of cashew net trees coming to maturity)